

Revised Description of Potential Impacts to the Platte River Basin

The following discussion is a summary of our evaluation of the potential for impacts to the Platte River system as presented by the OU-4 IM/IRA.

Evaporative losses from the current system, including the solar ponds with associated evaporative enhancements (such as the heater/soaker hoses) will be substantially reduced by the temporary water storage/treatment system discussed in the IM/IRA. The surface area of the temporary tanks is much less than that of the solar ponds and will not employ any evaporative enhancements. The system is intended to operate with two tanks at or below capacity, while the third tank will remain as standby storage capacity. Water will be pumped directly from the ITS pump house to the storage tanks, and finally on to the flash evaporators for treatment. As with the existing system, the treated water will then be added to the plant raw water system. This additional water allows the plant to reduce its consumption of water from outside sources of supply. Only a very small percentage of water from the plant raw water system is subsequently discharged through the plant sewage treatment plant (STP). Once again, this process is entirely consistent with plant operations for at least the past ten years, since operation of the present ITS and treatment program commenced in 1982.

Unusual soil conditions with associated saturated conditions were discovered during construction of the surface water diversion ditch on the north side of the surge tank site. This discovery has resulted in modifying the original ditch depth to intercept and collect the ground water contained within the soils and discharge the water directly to the dry stream channel within the basin. This system will most likely result in a net increase in ground water discharge to the basin, due to the elimination or substantial limitation of evaporation and transpiration losses following discharge at seeps on the hillsides of the basin and prior to the seeping water entering the normally dry channel.

The OU-4 ITS was designed to collect ground water, containing low levels of inorganic contaminants and even lower levels of radionuclides, migrating from the plantsite in the direction of North Walnut Creek. The construction of the initial interceptor trenches began in 1971. The current ITS was completed and began operation in 1981. The ITS collects approximately four (4) million gallons of ground and surface water per year (12 acre-feet). This portion of the Walnut Creek drainage basin typically discharges approximately 150 million gallons (460 acre-feet) of water per year. The total amount of water collected by the ITS represents less than three percent of the total drainage basin discharge. In addition, the water which would normally discharge to the basin (in the absence of the ITS) in the form of seeps on the hillside above or directly into the normally dry streambed, would be detained within ponds A-3 and A-4 for approximately six to eight weeks.

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Detailed studies conducted on the Woman Creek drainage basin on the south side of the RFP indicate that stream flow gains due to discharges from the ground water system generally return to the aquifer(s) before exiting the plantsite in the form of surface water. A copy of the draft report "Ground Water/Surface Water Interaction Study at Rocky Flats" is attached for your review. It should be noted that the stream sections experiencing significant gains in flow (9 through 16) probably receive these flows from offsite surface water inputs in the form of sheet flow irrigation and not as a result of discharge from the ground water system. This irrigation is not present in the OU-4 area, and it is reasonable to assume that the large inflow volumes would therefore also not be present. Detailed studies of the portion of the Walnut Creek drainage basin adjacent to OU-4 have not been performed because the majority of the normally intermittent flow in the stream channel has been rerouted through culverts and/or submerged by the A series ponds (A-1 through A-4).

Summary

In summary, the surface and ground water that will be collected by the ITS and treated within the scope of the IM/IRA has been collected and treated for the past eleven years as part of RFP operations. The ITS program commenced in 1971 and the current system has been in operation since 1981. The IM/IRA will not collect and treat a water volume greater than that which has been historically collected and treated with the existing solar pond evaporator system.

Two significant changes will occur to the current operating procedures as a result of the IM/IRA:

1. Collected water will be pumped to the surge tanks and then directly to the dedicated flash evaporators and/or Building 374 evaporator. This will result in a reduction in evaporative losses to the atmosphere as compared to the storage/evaporative process utilized within the current solar pond system.
2. Remediation of the unforeseen shallow ground water conditions discovered during construction of the surge tanks is expected to result in a net increase in ground water discharge to the Walnut Creek drainage basin.

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Implementation of the OU-4 IM/IRA will not adversely impact the current quantity of water discharged to the Platte River drainage basin from Walnut Creek. Based on this assessment, no net depletions to the South Platte River Basin flows as a result of the OU-4 IM/IRA are anticipated. If appropriate, we would like to meet with you and your staff to clarify any questions regarding the operation of the past and planned systems and potential impacts to the Platte River System. If you feel a meeting is not required, please review our determinations regarding the potential impacts and respond in writing as to whether or not you concur. Questions or concerns which you or your staff may have regarding this letter or enclosure should be directed to Scott R. Surovchak of my staff at 966-3551.

Sincerely,



Frazer R. Lockhart
Director
Environmental Restoration Division

Enclosure

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